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• Javadi, Shervin  
San Jose California 95134 (US)  
• Vrane, David R.  
San Jose, California 95112 (US)

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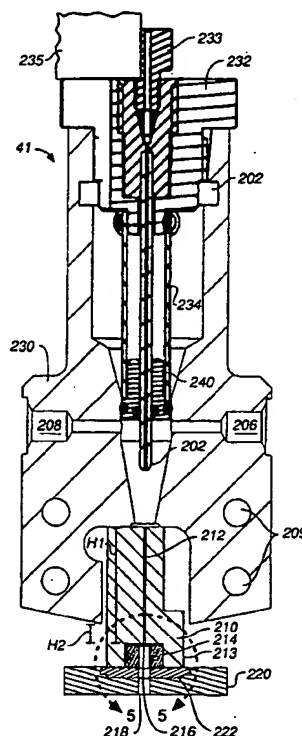
(71) Applicant: **Becton Dickinson and Company**  
Franklin Lakes, New Jersey 07417-1880 (US)

(74) Representative:  
Weber, Thomas, Dr.Dipl.-Chem. et al  
Patentanwälte  
von Kreisler-Selting-Werner,  
Postfach 10 22 41  
50462 Köln (DE)

(72) Inventors:  
• Norton, Pierce  
Morgan Hill California 95037 (US)

**(54) Fixed mounted sorting cuvette with user replaceable nozzle**

(57) A flow cell and flow cytometer in which a nozzle at the end of a flow channel is disposed on a removable substrate held at a registered location on a flow cell. Other elements including illumination optics, light collection optics, and the flow cell may then be positioned at fixed locations and would not require subsequent periodic adjustment. The registered location for positioning the nozzle allows removal and replacement of the nozzle key with the nozzle subsequently positioned in the identical location.



**FIG. 3**

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## EUROPEAN SEARCH REPORT

Application Number  
EP 03 02 0445

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X,D	US 4 660 971 A (SAGE ET AL) 28 April 1987 (1987-04-28)	1-3,5,6, 10-19, 23-44, 55-69	G01N15/14
Y	* the whole document *	4,7-9, 20-22, 45-54	
Y,D	US 6 133 044 A (VAN DEN ENGH GER) 17 October 2000 (2000-10-17)  * abstract * * column 9, line 28 - column 10, line 4 * * figure 1 * * figure 4 *	7-9, 20-22, 45-54	
Y,D	US 5 700 692 A (SWEET RICHARD G) 23 December 1997 (1997-12-23) * abstract * * column 4, line 27 - line 38 * * figure 1 *	4	
Y	US 5 517 870 A (KURIMURA MASAOKI ET AL) 21 May 1996 (1996-05-21) * abstract * * column 8, line 9 - line 37 * * figure 3 *	7-9, 20-22	
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 12 February 2004	Examiner Bravin, M
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 02 0445

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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12-02-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4660971	A	28-04-1987	AU 573144 B2	26-05-1988
			AU 4098985 A	07-11-1985
			CA 1242593 A1	04-10-1988
			DE 3577747 D1	21-06-1990
			DK 187985 A ,B,	04-11-1985
			EP 0160201 A2	06-11-1985
			FI 851323 A ,B,	04-11-1985
			JP 1928836 C	12-05-1995
			JP 4031353 B	26-05-1992
			JP 60238762 A	27-11-1985
US 6133044	A	17-10-2000	AU 698929 B2	12-11-1998
			AU 3958295 A	06-05-1996
			CA 2201324 A1	25-04-1996
			DE 69532416 D1	12-02-2004
			EP 0786078 A2	30-07-1997
			JP 10507524 T	21-07-1998
			WO 9612171 A2	25-04-1996
US 5700692	A	23-12-1997	NONE	
US 5517870	A	21-05-1996	JP 2763468 B2	11-06-1998
			JP 6194300 A	15-07-1994

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82